UTAH GEOLOGICAL SURVEY
a division of the
UTAH DEPARTMENT OF NATURAL RESOURCES
in cooperation with
UNITED STATES GEOLOGICAL SURVEY

Plate 2
Utah Geological Survey Miscellaneous Publication 01-4
Geologic Map of the Alton Quadrangle

Description of Map Units

Qa Alluvium - *Includes stream and fan alluvium, and terrace deposits of unconsolidated clay, silt, sand, and gravel in and near existing drainages. Adjacent to the plateau these deposits are predominantly sand and gravel. Away from the plateau these deposits are mostly mud where streams cut the Tropic Shale. Thin cover to about 10 feet (3 m) thick.*

Qms Landslide deposits - *Unconsolidated hummocky deposits of mud and sand, commonly containing large blocks of sandstone. The bulk of the material is from the Straight Cliffs Formation covering areas underlain by Tropic Shale. Thin cover to about 100 feet (30 m) thick.*

Qm Mass-wasting debris - *Predominantly resistant white and pink limestone from the Claron Formation and cobbly gravel from the Canaan Peak Formation. Thin cover to about 10 feet (3 m) thick.*

Qap Pediment alluvium - *Poorly sorted silt, sand, and gravel (up to large cobbles) on broad surfaces above present drainages. Formed by deposition from flowing water in the past; surfaces now abandoned. Thin cover to about 10 feet (3 m) thick.*

Qb Basalt - *Dike of dense, black, fine-grained, porphyritic, olivine basalt. Exposure displays rough columnar jointing and xenoliths. Up to 100 feet (30 m) wide.*

Tbh Brian Head Formation (revised) - *Interbedded, continental, non-resistant, mostly gray sandstone, siltstone, mudstone, calcarenite, and limy mudstone. Only present in and northwest of the Sevier fault zone. Equivalent to the uppermost variegated sandstone member of the Claron Formation of Tilton (1991). About 200 feet (60 m) thick.*

Tcw White member of Claron Formation - *Massive, white to light-gray limestone, with some local thin interbeds of gray mudstone. Forms conspicuous cap on higher hills on top of plateau. About 200 feet (60 m) thick.*

Tcp Pink member of the Claron Formation - *Interbedded cliff-forming sequence of dense pink limestone, and minor limy mudstone and calcarenite. Includes conglomerates of the Canaan Peak Formation locally at the base, up to 30 feet (9 m) thick. About 600 feet (180 m) thick.*

Kwk Wahweap and Kaiparowits(?) Formations, undivided - *Upper part is orangish-gray, in part salt-and-pepper gray, fine-grained, sandstone, with some thin lenticular beds of granules and small chert pebbles. Lower part is alternating yellowish-gray and yellowish-brown, fine-grained sandstone and gray and grayish-red-purple mudstone beds at a 1:1 ratio. Unconformity on top. About 600 to 800 feet (180-240 m) thick.*

Ksd Drip Tank Member of the Straight Cliffs Formation - *Massive, white to light-gray sandstone. Upper two-thirds contains prominent conglomerate beds of granular quartz and pebbles of gray chert. Casts of logs are locally common. 185 to 215 feet (55-65 m) thick.*

Ksj John Henry Member of the Straight Cliffs Formation - *Alternating grayish-orange, very fine- to fine-grained, cross-bedded sandstone, and gray and pale-red-purple mudstone at a 2:1 ratio. About 670 feet (205 m) thick.*

Kss Smoky Hollow Member of the Straight Cliffs Formation - *Upper part is a distinctive, white to grayish-orange sandstone containing quartz granules and chert and quartzite pebbles ("calico bed"). Middle part is orangish-gray fine-grained sandstone and gray mudstone. Lower part is gray mudstone, with thin, persistent carbonaceous shale in base. Unconformity between middle and upper parts. About 135 feet (40 m) thick.*

Kst Tibbet Canyon Member of Straight Cliffs Formation - *Prominent, orangish-gray, massive, cliff-forming sandstone. Upper part is cross-bedded and contains abundant oyster shells. 120 to 160 feet (35-50 m) thick.*

Kt Tropic Shale - *Medium-brownish-gray to gray, very thin-bedded, non-resistant, silty shale; thin interbeds of fine-grained silty sandstone in upper part from interlingering with overlying unit. Base is commonly baked by burning of coal in the underlying Dakota Formation. About 700 feet (210 m) thick.*

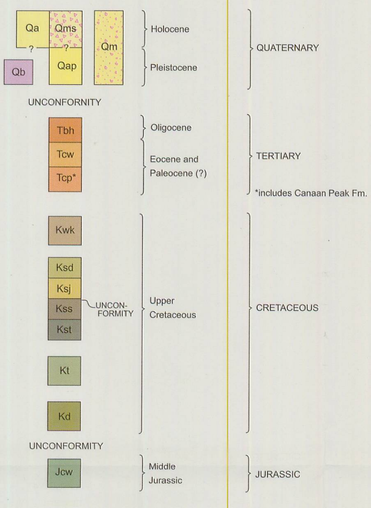
Kd Dakota Formation - *Alternating fluvial gray mudstone and sandstone, with beds of coal, conglomerate, and bentonite. About 275 feet (85 m) thick.*

Jcw Winsor Member of the Carmel Formation -- *Light-yellow, fine-grained, cross-bedded sandstone. Unconformity on top. About upper 50 feet (15 m) exposed.*

Map Symbols

- Contact - *dashed where approximately located*
- Normal Fault - *dashed where approximately located or inferred; dotted where concealed; ball and bar on down-thrown side; X marks the point of reversal of offset on scissor(?) faults; arrows on cross section show offset*
- 6 — Strike and dip of bedding
- Strike of vertical joint
- Horizontal joint
- A — A' — Line of cross section
- Coal zone - approximately located
- Coal mine or prospect
- Approximate line of measured section (appendix)

Correlation of Map Units



Lithologic Column